



06 - ELECTRICAL - TRAFFIC MONITORING STATIONS

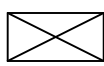







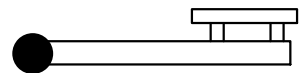



INDEX OF DRAWINGS

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THE DESIGN APPEARS TO CONFORM TO APPLICABLE CRITERIA. APPROVAL IS NOT TO BE CONSTRUED TO MEAN THAT ALL ASPECTS OF THE DESIGN HAVE BEEN PERSONALLY CHECKED BY THE UNDERSIGNED.


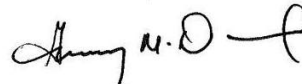
TRANSPORTATION PRINCIPAL ENGINEER

				DESIGNER/DRAFTER: ZR CHECKED BY: EWM		 STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION		SIGNATURE/ BLOCK:  APPROVED BY:		PROJECT TITLE: PAVEMENT PRESERVATION OF ROUTE 3		TOWN: GLASTONBURY, WETHERSFIELD DRAWING TITLE:		PROJECT NO. 159-192 DRAWING NO. TMS-01 SHEET NO. 06.01	
THE INFORMATION, INCLUDING ESTIMATED QUANTITIES OF WORK, SHOWN ON THESE SHEETS IS BASED ON LIMITED INVESTIGATIONS BY THE STATE AND IS IN NO WAY WARRANTED TO INDICATE THE CONDITIONS OF ACTUAL QUANTITIES OF WORK WHICH WILL BE REQUIRED.				Plotted Date: 11/10/2015		Filename: ...\\FD-MSH-IDX-0159-0192-TMS-01.dgn									
REV.	DATE	REVISION DESCRIPTION	SHEET NO.												

TRAFFIC MONITORING STATION LEGEND	
SYMBOL	DESCRIPTION
	TRAFFIC CONTROLLER CABINET AND FOUNDATION
	REMOVE TRAFFIC CONTROLLER CABINET AND FOUNDATION
	CONCRETE HANDHOLE - TYPE III
	EXISTING CONCRETE HANDHOLE
	REMOVE EXISTING CONCRETE HANDHOLE
-----	RIGID METAL CONDUIT/LIQUIDTIGHT FLEXIBLE NONMETALLIC CONDUIT
~~~~~	SAW CUT
	WOOD POLE
	LIGHT STANDARD
	OVERHEAD SIGN
	CANTILEVER SIGN
	SIDE MOUNTED SIGN
	LOOP DETECTOR
	PIEZO CABLE SENSOR (TYPE 2)
	PIEZO CABLE SENSOR (TYPE 1)
	SOLAR POWER SYSTEM

GENERAL NOTES:

1. ALL CABINETS TO BE FIELD LOCATED OR AS SHOWN ON PLAN. INSTALL CONCRETE SIDEWALK ON CABINET DOOR SIDE PER STANDARD INSTALLATION DETAIL.
2. LOOP AND PIEZO INSTALLATION SHALL COMPLY WITH SECTION 10.00 - GENERAL CLAUSES FOR HIGHWAY ILLUMINATION AND TRAFFIC SIGNAL PROJECTS.
3. SINGLE CONDUCTORS SHALL BE STRANDED COPPER, INSULATION TYPE THWN AND RATED FOR 600 VOLTS.
4. THE REMOVAL OF BRUSH IS TO BE INCLUDED UNDER THE ITEM TRAFFIC CONTROLLER CABINET BASE MOUNTED.
5. RIGID METAL CONDUIT IN CONCRETE HANDHOLES SHALL BE BONDED WITH NO. 8 BARE COPPER GROUNDING CONDUCTOR.
6. ANY UNUSED CONDUIT SHALL BE CAPPED WITH A MALLEABLE IRON CAP.
7. THE CONTRACTOR SHALL PROVIDE THE STATE A COMPLETE SET OF REPRODUCIBLE AS-BUILT DRAWINGS CLEARLY INDICATING ANY DEVIATIONS FROM THE DESIGN AS SHOWN ON THESE DRAWINGS.
8. THE CONTRACTOR SHALL SCHEDULE WORK TO AVOID OTHER HIGHWAY PROJECTS IN AFFECTED WORK AREA. IT IS THE CONTRACTOR'S RESPONSIBILITY TO COORDINATE WITH OTHER HIGHWAY PROJECTS IN THE AREA.
9. THE STATE SHALL RESERVE THE RIGHT TO PRIORITIZE SITES AND SCHEDULE SITE CONSTRUCTION SEQUENCE TO AVOID CONFLICTS WITH OTHER HIGHWAY PROJECTS.
10. ALL HANDHOLES SHALL BE LOCATED APPROXIMATELY 4' OFF EDGE OF ROAD. HANDHOLES SHALL NOT BE INSTALLED DIRECTLY UNDER GUIDE RAIL OR ON TOP OF UNDERGROUND LIGHTING CIRCUITRY AND INCIDENT MANAGEMENT SYSTEM CONDUIT.
11. THE CABINET DOOR SHALL BE LOCATED SO THE DETECTORS AND SENSORS ARE VISIBLE WHILE FACING THE CABINET OPENING.
12. ALL TRAVEL LANES ARE 12' UNLESS NOTED.
13. ALL TEMPORARY REMOVAL AND/OR RELOCATION OF GUIDE RAIL OR FENCING SHALL BE CONSIDERED INCLUDED IN THE GENERAL COST OF THE WORK.

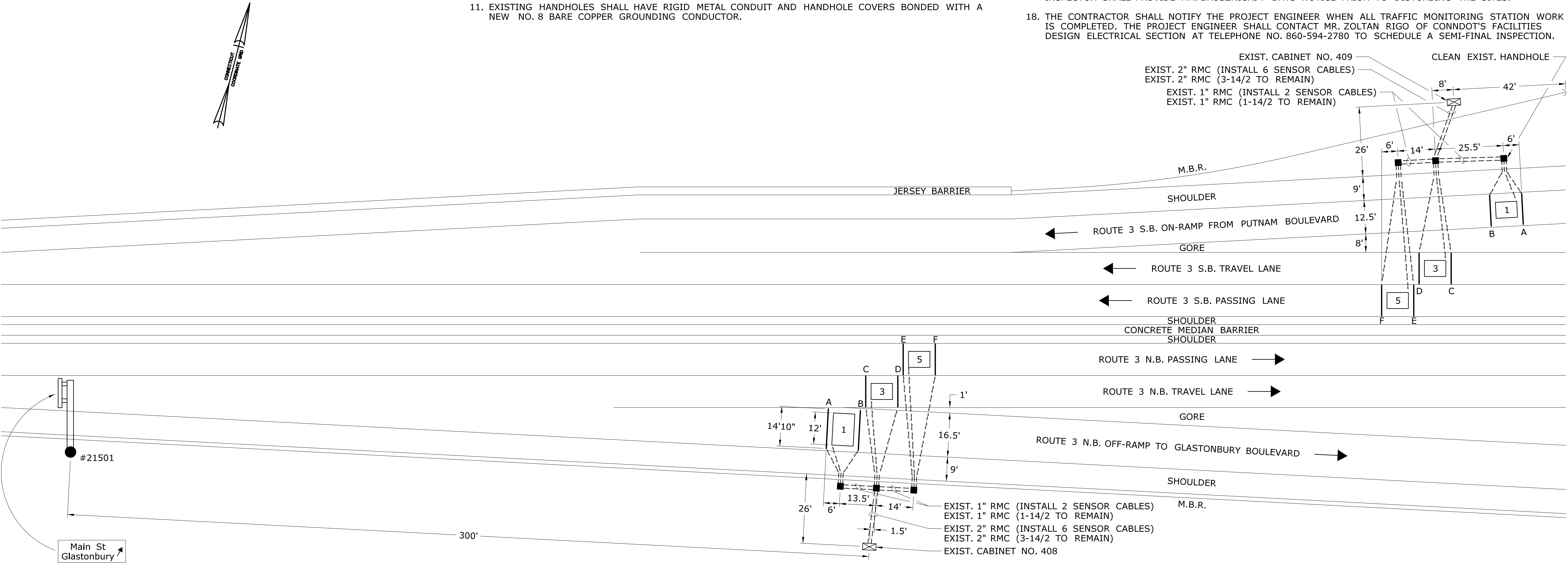
				DESIGNER/DRAFTER: ZR		<div><b>STATE OF CONNECTICUT</b> <b>DEPARTMENT OF TRANSPORTATION</b></div> <div>Filename: ...\\FD_MSH_DET.0159_0192_TMS-02.dgn</div>	SIGNATURE/ BLOCK: <b>OFFICE OF ENGINEERING</b>  APPROVED BY: 	PROJECT TITLE:  <b>PAVEMENT PRESERVATION OF ROUTE 3</b>	TOWN: <b>GLASTONBURY, WETHERSFIELD</b>	PROJECT NO. <b>159-192</b>
				CHECKED BY: EWM						



LEGEND	
SYMBOL	DESCRIPTION
	TRAFFIC CONTROLLER CABINET AND FOUNDATION
	EXISTING CONCRETE HANDHOLE - TYPE III
	RIGID METAL CONDUIT/LIQUIDTIGHT FLEXIBLE NONMETALLIC CONDUIT
	SAW CUT
	CANTILEVER SIGN
	LOOP DETECTOR
	PIEZO CABLE SENSOR (TYPE 1)

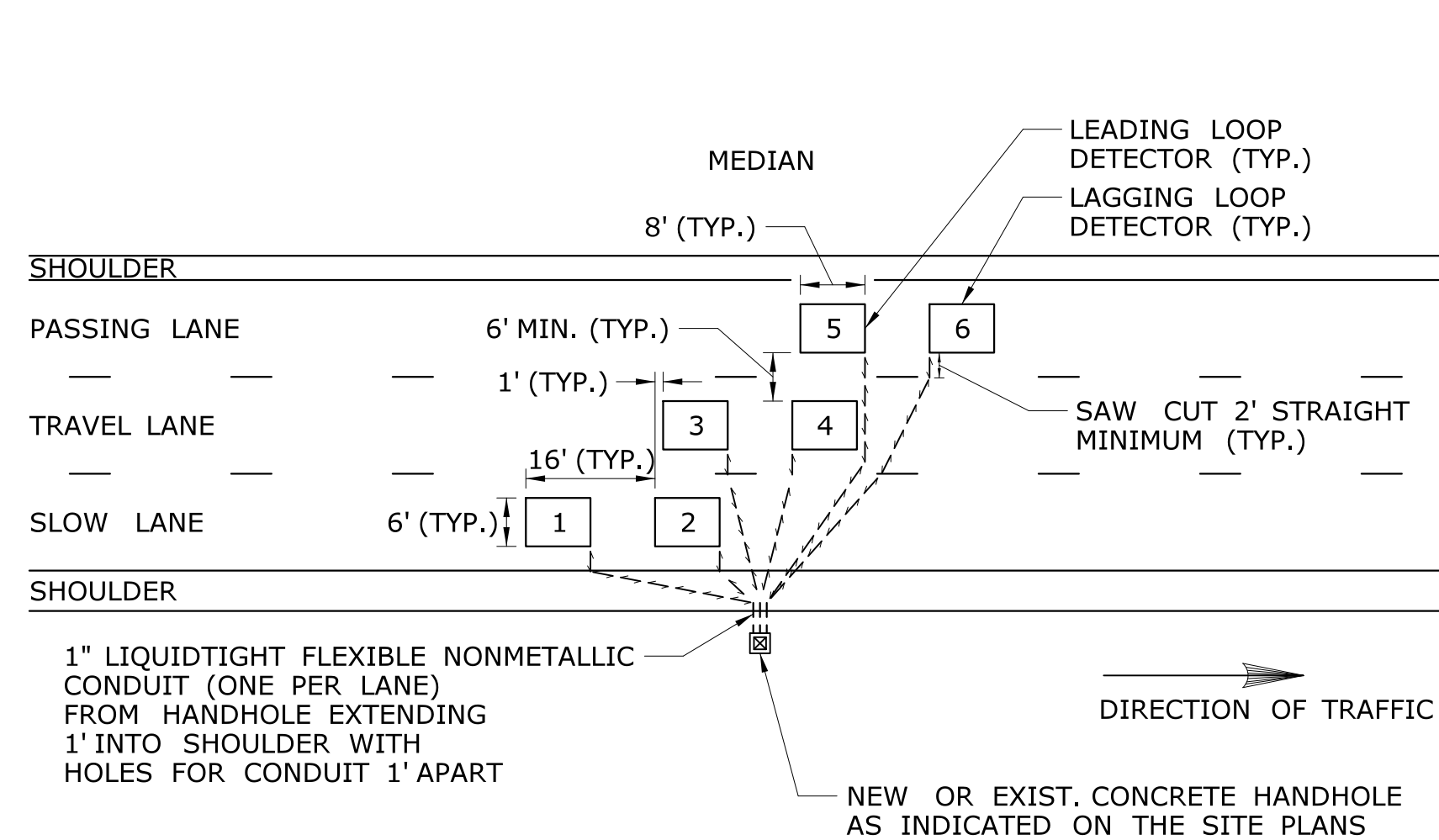
NOTES:

1. THE CONTRACTOR SHALL REPLACE THE LOOP DETECTORS AND PIEZO SENSORS AT EXISTING TRAFFIC MONITORING STATIONS GLAS-228, GLAS-232, AND GLAS-234 IN THE TOWN OF GLASTONBURY, WHICH WILL BE DISTURBED AS A RESULT OF MILLING AND PAVING ON ROUTE 3.
2. EXISTING CABINETS, HANDHOLES, AND 14/2 CABLES SHALL BE REUSED.
3. EXISTING CONDUIT SHALL BE REUSED, EXCEPT FOR 1" LIQUIDTIGHT FLEXIBLE NONMETALLIC CONDUIT AND 1" RIGID METAL CONDUIT STUBBING INTO ROADWAY. EXISTING 1" LIQUIDTIGHT FLEXIBLE NONMETALLIC CONDUIT AND 1" RIGID METAL CONDUIT STUBBING INTO ROADWAY SHALL BE REMOVED FROM HANDHOLES TO EDGE OF PAVEMENT TO MAKE ROOM FOR THE INSTALLATION OF NEW CONDUIT. NEW 1" LIQUIDTIGHT FLEXIBLE NONMETALLIC CONDUIT SHALL BE INSTALLED FROM HANDHOLES 1' INTO SHOULDER.
4. EXISTING NO. 14 LOOP WIRES SHALL BE REMOVED FROM HANDHOLES.
5. EXISTING PIEZO SENSOR CABLES SHALL BE REMOVED FROM CONDUIT, HANDHOLES, AND CABINETS.
6. EXISTING NO. 8 BARE COPPER GROUNDING CONDUCTOR SHALL BE REMOVED FROM HANDHOLES.
7. EXISTING NO. 14 LOOP WIRES SHALL BE DISCONNECTED FROM 14/2 CABLES IN HANDHOLES AND EXISTING PIEZO SENSOR CABLES SHALL BE DISCONNECTED FROM TERMINAL BLOCKS IN CABINETS PRIOR TO MILLING OF PAVEMENT.
8. THE CONTRACTOR SHALL INSTALL TWELVE TYPE 1 PIEZO SENSORS ALONG WITH PIEZO CABLE FROM SENSOR TO CABINET. ALL PIEZO SENSORS SHALL BE 11'6" IN LENGTH EXCEPT FOR PIEZO SENSORS A AND B LOCATED ON THE ROUTE 3 N.B. OFF-RAMP TO GLASTONBURY BOULEVARD, WHICH SHALL BE 14'10".
9. THE CONTRACTOR SHALL INSTALL SIX LOOP DETECTORS. ALL LOOP DETECTORS SHALL BE 6' X 8' EXCEPT FOR LOOP DETECTOR NO. 1 LOCATED ON THE ROUTE 3 N.B. OFF-RAMP TO GLASTONBURY BOULEVARD, WHICH SHALL BE 12' X 8'. LOOP DETECTORS SHALL BE INSTALLED IN FINAL PAVEMENT COURSE AND SPLICED TO EXISTING 14/2 CABLES IN EXISTING HANDHOLES.
10. EXISTING HANDHOLE SHALL BE CLEANED OF ALL DEBRIS WHERE INDICATED ON THE PLAN.
11. EXISTING HANDHOLES SHALL HAVE RIGID METAL CONDUIT AND HANDHOLE COVERS BONDED WITH A NEW NO. 8 BARE COPPER GROUNDING CONDUCTOR.

12. ALL WIRING WITHIN THE CABINETS SHALL BE NEAT, FIRM, LABELED AND CONNECTED TO THE APPROPRIATE TERMINAL BLOCKS.
13. THE JACKET OF EACH PIEZO SENSOR CABLE SHALL BE REMOVED FROM ONLY THE LAST 2" AT TERMINALS TO MINIMIZE ELECTRICAL INTERFERENCE AND CABLE SHALL BE CONNECTED TO THE TERMINALS USING SPADE LUGS.
14. THE CONTRACTOR SHALL CLEARLY MARK EACH LOOP DETECTOR CABLE AND PIEZO SENSOR CABLE TO IDENTIFY THE LOOP DETECTOR AND PIEZO SENSOR TO WHICH IT IS CONNECTED, AS STATED IN THE "TWO PIEZOS (TYPE 1) AND ONE LOOP PER LANE" DETAIL ON DRAWING NO. TMS-04 AND LABELED ON THE PLAN.
15. THE CONTRACTOR SHALL PROPERLY IDENTIFY ALL LOOP DETECTORS AND PIEZO SENSORS AT TERMINALS WITH STRIP TAGS, AS LABELED ON THE PLAN.
16. THE CONTRACTOR SHALL NOTIFY "CALL BEFORE YOU DIG," TELEPHONE: 1-800-922-4455 FOR THE LOCATION OF PUBLIC UNDERGROUND FACILITIES IN ACCORDANCE WITH SECTION 16-345 OF THE REGULATIONS OF THE PUBLIC UTILITIES REGULATORY AUTHORITY. IN AREAS ADJACENT TO UNDERGROUND LIGHTING CIRCUITRY AND INCIDENT MANAGEMENT SYSTEM (IMS), THE CONTRACTOR IS REQUIRED TO HAND EXCAVATE. THE CONTRACTOR WILL BE RESPONSIBLE FOR LOCATING, VERIFYING THE LOCATION OF, AND PROTECTING ALL LIGHTING AND IMS APPURTENANCES ABOVE AND BELOW GROUND. ANY DAMAGE CAUSED TO THE LIGHTING SYSTEM OR IMS WILL BE THE RESPONSIBILITY OF THE CONTRACTOR, AND WILL BE REPLACED BY THE CONTRACTOR AT HIS OWN EXPENSE, AS DIRECTED BY THE ENGINEER. MARK-OUT OF THE LIGHTING CIRCUITRY AND IMS WILL NOT RELIEVE THE CONTRACTOR OF RESPONSIBILITY.
17. THE CONTRACTOR SHALL NOTIFY THE PROJECT INSPECTOR WHEN ACCESS TO THE CABINETS IS REQUIRED. THE PROJECT INSPECTOR SHALL CONTACT MR. JOSEPH BRUSZNICKI OF CONNDOT'S OFFICE OF SYSTEMS MODELING AND FORECASTING'S TRAFFIC MONITORING SECTION AT TELEPHONE NO. 860-594-2942 FOR THE CONTRACTOR TO GAIN ACCESS TO THE CABINETS. THE PROJECT INSPECTOR SHALL INFORM MR. BRUSZNICKI OF THE COMMENCEMENT OF LOOP DETECTOR AND PIEZO SENSOR INSTALLATION 7 DAYS PRIOR TO THE START OF WORK IN ORDER TO PROVIDE AN OPPORTUNITY FOR A REPRESENTATIVE OF THE TRAFFIC MONITORING SECTION TO BE PRESENT DURING THE INSTALLATION. ALSO, THE PROJECT INSPECTOR SHALL PROVIDE MR. BRUSZNICKI 7 DAYS NOTICE PRIOR TO DISTURBING THE SITES.
18. THE CONTRACTOR SHALL NOTIFY THE PROJECT ENGINEER WHEN ALL TRAFFIC MONITORING STATION WORK IS COMPLETED. THE PROJECT ENGINEER SHALL CONTACT MR. ZOLTAN RIGO OF CONNDOT'S FACILITIES DESIGN ELECTRICAL SECTION AT TELEPHONE NO. 860-594-2780 TO SCHEDULE A SEMI-FINAL INSPECTION.



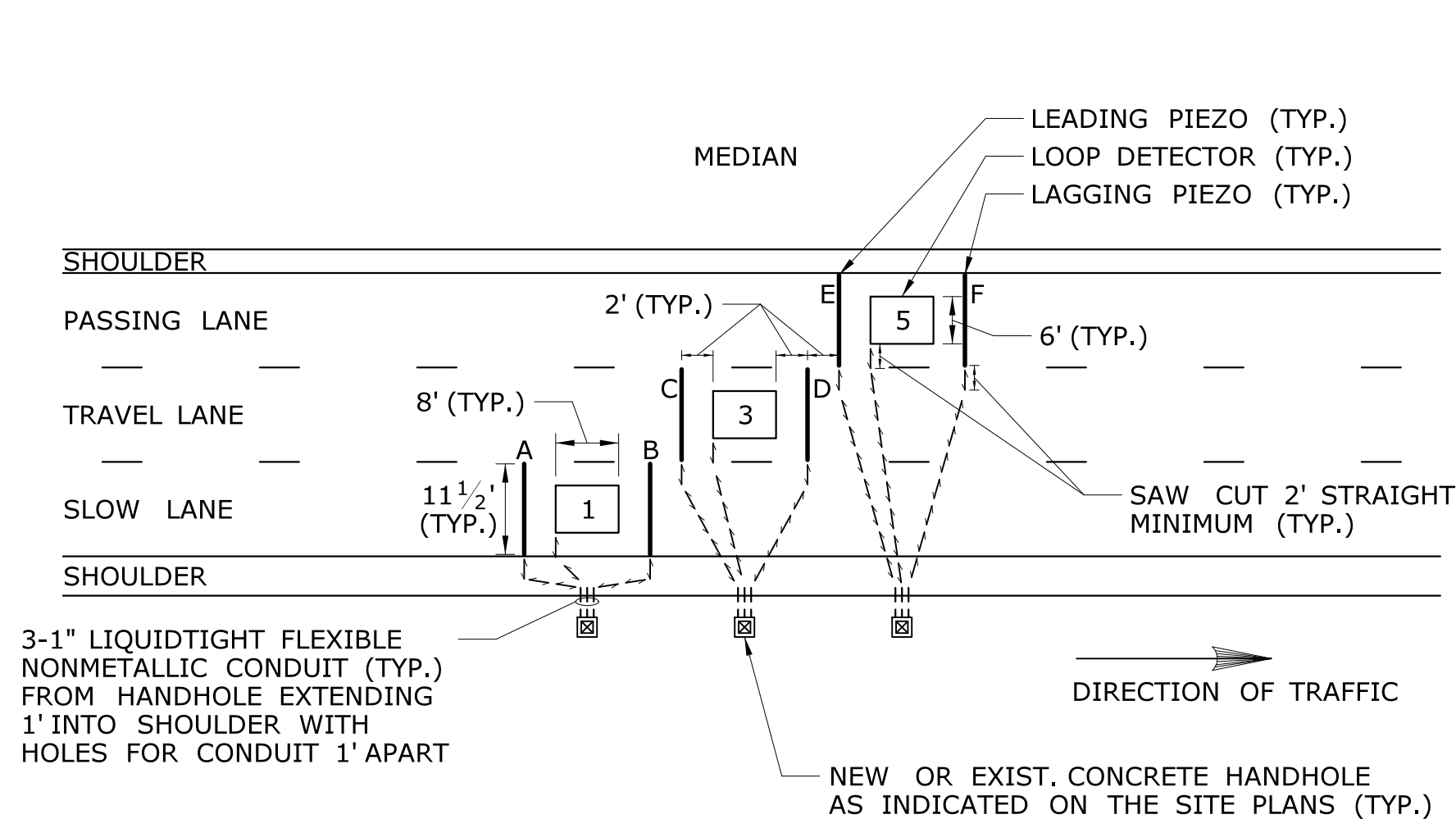
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						CHECKED BY: EWM		DRAWING NO. <b>TMS-03</b>															
						NOT TO SCALE		SHEET NO. <b>06.03</b>															
REV.	DATE	REVISION DESCRIPTION		SHEET NO.	Plotted Date: 11/17/2015																		



1. LOOP DETECTORS TO BE 6' X 8', 4 TURNS EACH, UNLESS NOTED.
2. LOOP DETECTORS TO BE INSTALLED IN THE CENTER OF EACH LANE, UNLESS NOTED.
3. LOOP DETECTORS TO BE FIELD LOCATED SO THAT NO SAW CUTS WILL BE MADE THROUGH CONCRETE EXPANSION JOINTS OR POOR PAVEMENT.
4. ALL SAW CUT HOME RUNS SHALL BE A MINIMUM 1' APART.
5. LOOP CABLES SHALL HAVE 2' OF SLACK IN HANDHOLES.
6. ALL LEAD-IN WIRE PAIRS SHALL BE TWISTED TOGETHER FIVE (5) TURNS PER FOOT WHEN IN CONDUIT.
7. ALL LOOP DETECTOR LEADS SHALL BE COLOR CODED WITH TAPE IN CABINET, HANDHOLES, AND JUNCTION BOXES AS FOLLOWS:  
     LEADING LOOPS = 1 BAND OF TAPE  
     LAGGING LOOPS = 2 BANDS OF TAPE

LOOP NO.	TAPE COLOR
1, 2	RED
3, 4	BLUE
5, 6	ORANGE
7, 8	YELLOW
9, 10	BROWN
11, 12	PURPLE
13, 14	GRAY
15, 16	PINK

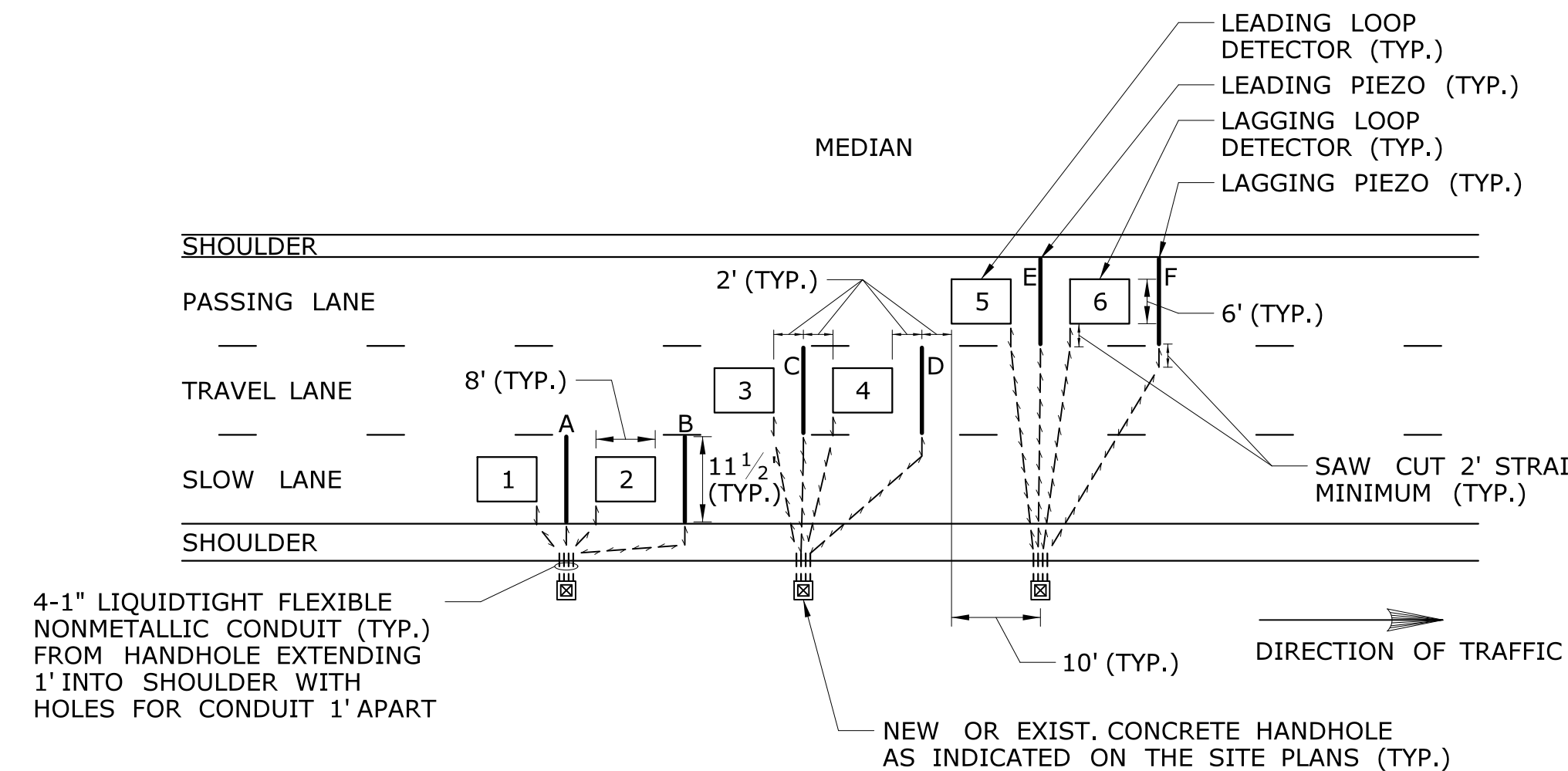
## TWO LOOPS PER LANE



1. LOOP DETECTORS TO BE 6' X 8', 4 TURNS EACH, EXCEPT FOR LOOP DETECTOR NO. 1 LOCATED ON THE ROUTE 3 N.B. OFF-RAMP TO GLASTONBURY BOULEVARD, WHICH SHALL BE 12' X 8', 4 TURNS.
2. PIEZO SENSORS TO BE 11'6" IN LENGTH EACH, EXCEPT FOR PIEZO SENSORS A AND B LOCATED ON THE ROUTE 3 N.B. OFF-RAMP TO GLASTONBURY BOULEVARD, WHICH SHALL BE 14'10" IN LENGTH.
3. LOOP DETECTORS AND PIEZO SENSORS TO BE INSTALLED IN THE CENTER OF EACH LANE, UNLESS NOTED.
4. LOOP DETECTORS AND PIEZO SENSORS TO BE FIELD LOCATED SO THAT NO SAW CUTS WILL BE MADE THROUGH CONCRETE EXPANSION JOINTS OR POOR PAVEMENT.
5. ALL SAW CUT HOME RUNS SHALL BE A MINIMUM 1' APART.
6. LOOP CABLES SHALL HAVE 2' OF SLACK IN HANDHOLES.
7. ALL LEAD-IN WIRE PAIRS SHALL BE TWISTED TOGETHER FIVE (5) TURNS PER FOOT WHEN IN CONDUIT.
8. ALL LOOP DETECTOR & PIEZO SENSOR LEADS SHALL BE COLOR CODED WITH TAPE IN CABINET, HANDHOLES, AND JUNCTION BOXES AS FOLLOWS:  
     LEADING LOOPS & PIEZOS = 1 BAND OF TAPE  
     LAGGING LOOPS & PIEZOS = 2 BANDS OF TAPE

LOOP NO.	PIEZO	TAPE COLOR
1, 2	A, B	RED
3, 4	C, D	BLUE
5, 6	E, F	ORANGE
7, 8	G, H	YELLOW
9, 10	I, J	BROWN
11, 12	K, L	PURPLE
13, 14	M, N	GRAY
15, 16	O, P	PINK

## TWO PIEZOS (TYPE 1) AND ONE LOOP PER LANE

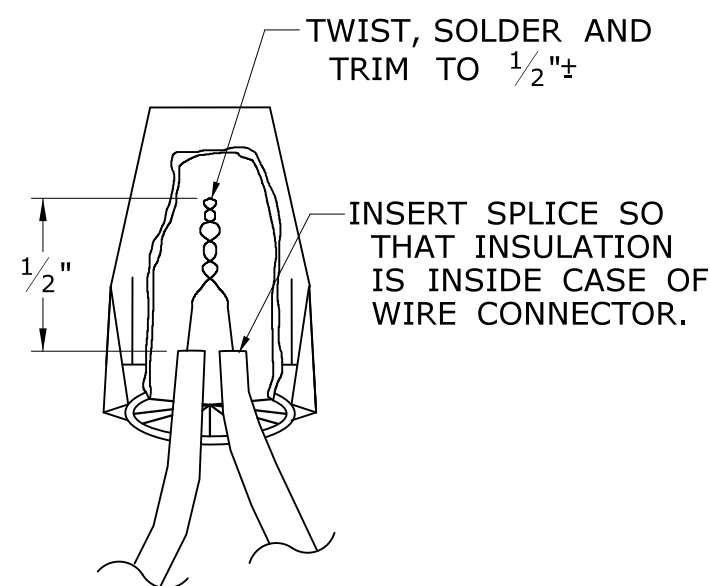


1. LOOP DETECTORS TO BE 6' X 8', 4 TURNS EACH, UNLESS NOTED.
2. LOOP DETECTORS AND PIEZO SENSORS TO BE INSTALLED IN THE CENTER OF EACH LANE, UNLESS NOTED.
3. LOOP DETECTORS AND PIEZO SENSORS TO BE FIELD LOCATED SO THAT NO SAW CUTS WILL BE MADE THROUGH CONCRETE EXPANSION JOINTS OR POOR PAVEMENT.
4. ALL SAW CUT HOME RUNS SHALL BE A MINIMUM 1' APART.
5. LOOP CABLES SHALL HAVE 2' OF SLACK IN HANDHOLES.
6. ALL LEAD-IN WIRE PAIRS SHALL BE TWISTED TOGETHER FIVE (5) TURNS PER FOOT WHEN IN CONDUIT.
7. ALL LOOP DETECTOR & PIEZO SENSOR LEADS SHALL BE COLOR CODED WITH TAPE IN CABINET, HANDHOLES, AND JUNCTION BOXES AS FOLLOWS:  
     LEADING LOOPS & PIEZOS = 1 BAND OF TAPE  
     LAGGING LOOPS & PIEZOS = 2 BANDS OF TAPE

LOOP NO.	PIEZO	TAPE COLOR
1, 2	A, B	RED
3, 4	C, D	BLUE
5, 6	E, F	ORANGE
7, 8	G, H	YELLOW
9, 10	I, J	BROWN
11, 12	K, L	PURPLE
13, 14	M, N	GRAY
15, 16	O, P	PINK

## TWO PIEZOS (TYPE 1) AND TWO LOOPS PER LANE

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NOTE:

WATER RESISTANT CONNECTOR DESIGNED  
FOR WET, DAMP AND CORROSIVE  
APPLICATIONS. ONE TIME USE ONLY.  
DISCARD ALL REMOVED CONNECTORS.

### DETAIL "E"

## LOOP DETECTOR SPLICES

POLYESTER SEALANT  
FILL SEALANT FLUSH WITH PAVEMENT. SQUEEGEE  
EXCESS SEALANT AWAY FROM SAWCUT.





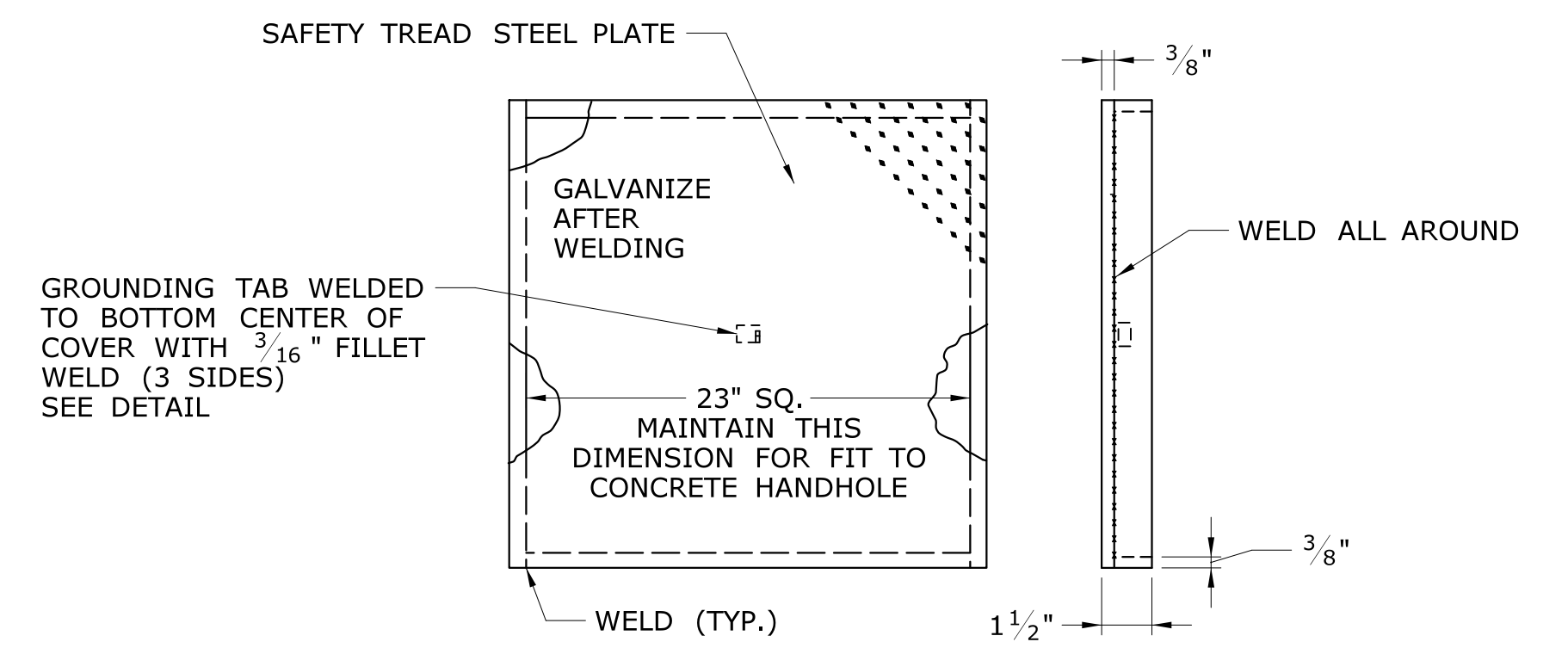
NOT ACCEPTABLE SAW CUT

DO NOT OVERLAP MORE THAN TWO SAWCUTS.

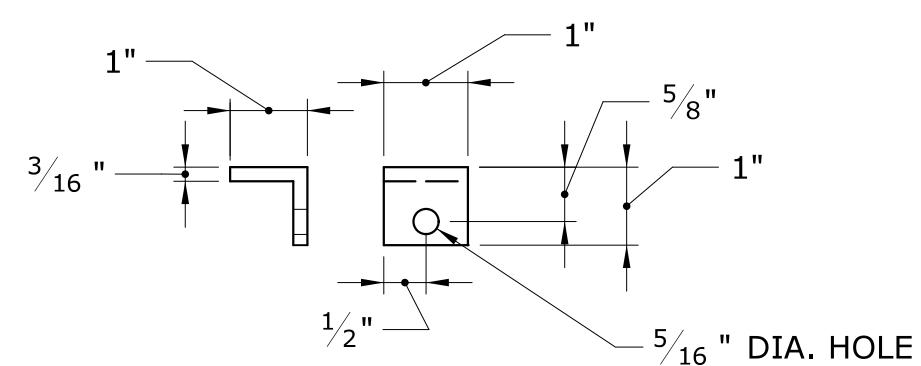
NOTES:

PERFORM 600 VOLT MEGGER TEST PRIOR TO SEALING SAWCUT. RESISTANCE TO GROUND NOT LESS THAN 10 MEG. OHMS.  
ONLY USE POLYESTER COMPOUND AS SEALANT, UNLESS OTHER TYPE IS APPROVED BY ENGINEER.  
WET SAW CUT ONLY; DRY SAW CUT NOT PERMITTED.  
RECOMMENDED SAW BLADE: 14" x  $\frac{3}{8}$ " PRODUCES  $\frac{7}{16}$ " SLOT.  
SAW CUT LOOP & HOME RUN DEPTH TO ENSURE MIN. 1" SEALANT COVERAGE.

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REV.	DATE	REVISION DESCRIPTION		SHEET NO.	Plotted Date: 10/14/2015												





### CONCRETE HANDHOLE - TYPE III



## STEEL GROUNDING TAB

NOTE:

1. ATTACH 6' LENGTH OF NO. 8 GROUND WIRE TO GROUNDING TAB WITH ONE HOLE LUG,  $\frac{1}{4}$ "-20 x  $\frac{3}{4}$ " LG. SST HEX HEAD BOLT, AND SST FLAT WASHER. ATTACH FREE END OF GROUND WIRE TO NO. 8 BARE GROUND WIRE IN HANDHOLE.
2. GROUT AROUND ALL CONDUITS.

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